

PTO 06-4456

French Patent Application

Document No. 2,634,463

DISPENSER BOX FOR VARIOUS HOLDERS
[COFFRET DISTRIBUTEUR POUR ETUIS DIVERS]

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UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. MAY 2006

Translated by: Schreiber Translations, Inc.

Country : France
Document No. : 2,634,463
Document Type : French Patent Application
Language : French
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Applicant : G. E. Inard
IPC : B 65 D 83/04
Application Date : 19880720
Publication Date : 19900126
Foreign Language Title : coffret distributeur pour etuis
divers
English Title : Dispensing boxes for various
holders

Dispensing boxes for various holders

Abstract

Dispensing box for various kinds of holders characterized in that it includes a body 2 that surrounds a top 3 from which cavities 4 are formed, each of which includes an opening that leads to at least one projecting part 15 that forms a narrow section above a housing that surrounds each cavity from a deformable base 18.

The present invention concerns a novel box intended to hold various kinds of holders and, more particularly, holders of capsules, vials, or even tablets whose dimensions might differ.

Some boxes of this kind, which have diameter differences of 1 to 100 mm and length differences of 1 to 150 mm, are encountered frequently in the pharmaceutical industry.

It is important that the homeopathic products contained in the boxes not be subjected to sudden movements and especially that these boxes, most often comprised of two parts that fit together, cannot open and let the products that they hold fall out.

The invention creates a new kind of box that allows one, although it is identical for a large number of box types, to hold them and to keep them stable while allowing filling in mechanized units that prevent any manual contact.

¹ Numbers in the margin indicate pagination in the foreign text.

In conformity with the invention the dispensing holder for various boxes is characterized in that it includes a body that surrounds a top from which cavities are formed, each of which delimits an opening that leads to at least one projecting part that forms a narrow section above a housing that delimits each cavity from a deformable base.

According to another characteristic of the invention the body is equipped with a cavity closing cap.

Various other characteristics of the invention will also be apparent from the detailed description that follows.

Some forms of implementation of the object of the invention are shown, by means of non-limiting examples, in the attached drawings.

/2

Figure 1 is a perspective view of the box of the invention.

Figure 2 is a partial perspective view cut along line III-II of figure 1.

Figure 3 is a partial sectional view along line III-III of figure 1.

Figure 4 is a diagrammatic sectional view, on a smaller scale, of the box that illustrates an initial development of the invention.

Figure 5 is a sectional view similar to figure 4 that illustrates another development of the invention.

Figure 6 is a diagrammatic partial sectional view, much enlarged, of a detail that is shown in figure 5.

Figure 7 is a diagrammatic sectional view similar to figures 4 and 5 that illustrates another development of the invention.

The box of the invention is designated, in its entirety, by 1 and includes a body 2 that has a top 3, approximately flat, from which some cavities 4 described in more detail in the subsequent text are formed.

The top 3 is bordered by a flanged edge at the base of which a crown 6 is formed that borders the body 2 over its entire periphery.

The crown 6 is prolonged by a peripheral belt 7 that is used to tighten it and at the base of which a flange 8 is formed.

The flange 8 is extended, on one side, to form an attachment spine 9 similar to that of a book and which is itself extended by a flat area that forms a cover 10.

A rib 11 that turns its convex part toward the top 3 is formed in the flat area that forms the cover 10.

The height from which the rib 11 must project corresponds to the height of the creased edge 5 and the width of the rib 11 corresponds approximately to the width of the crown 6 that borders the creased flange 5 and which is intended to serve as a stop for the said rib 11. /3

The rib 11, moreover, has the function of thickening the flat area 10 that forms the cover.

It is advantageous, as figure 1 shows, that some protuberances 12, bosses for example, be formed in the flanged edge 5 and that some complementary protuberances 13, some notches

for example, be formed in a corresponding manner in the rib 11. The arrangement of the bosses and the notches can obviously be opposite one another.

The protuberances 12 and complementary protuberances 13 are intended to work together to assure locking of the cover on the body 2 when this cover is closed.

As one can see from the preceding text the unit described can be easily made in a single piece, from a sheet of thermoplastic molded under vacuum or otherwise formed.

As figures 2 and 3 show more particularly the cavities 4 have a widened opening 14 that leads to some projecting parts 15 that can be at an acute angle, or on the contrary rounded, and delimiting together a narrow section 16.

Beyond the narrow section 16 each cavity delimits a housing 17 whose deformable base 18 is, advantageously, given a semi-circular section. The cavities described above are intended to contain some holders 19, 19a~~19n~~19n (figures 1 and 3) whose dimensions with respect to their diameters, or their width with respect to their length, can vary.

Figure 3 shows that the projecting parts 15 comprise retaining elements for the holders 19, 19a~~19n~~19n when the latter are put in place in the cavities of the box. The cavities are then pushed in the direction of the arrow f1 so that they cross over the narrow section 16, which is permitted because of the elasticity of the constituent material of the box and, possibly the constituent material of the holder.

/4

Next, the holders occupy the positions shown at 19₁ and 19a₁ of figure 3, that is, they enter into position in the housing 17 in which they are also held by the lateral walls that delimit the cavities so that the said holders can be prevented from being moved, even when the box that contains them is subjected to movements and vibrations.

The holders 19, 19a~~1~~19n can be comprised of different objects, capsules that contain pharmaceutical products for example, vials made of various materials that hold a liquid, a powder, or another product.

In order to extract the holders it suffices to open the box by moving the cover 10 of the body 2 aside, and then exerting a pushing force from below the base 18 that contains the holder to be extracted, which causes the deformation of the cavity and thus making it possible for the holder to cross over the narrow section 16. The holder can, subsequently, be grabbed manually.

Figure 4 shows an initial development of the invention according to which a sheet 20 is applied on the bottom of the cover 10 in such a manner as to be framed by the rib 11. The sheet 20 is, advantageously, comprised of a sheet of paper that bears different graphical symbols intended to inform the user of the box and the cavities what it contains for example.

Figures 5 and 6 show a second development of the invention according to which one provides a wavy plate 21 that can be encased in the cover 10 inside the space delimited by the rib 11 of the latter. The undulations 22 of the wavy plate 21 are

provided in order to correspond to the various cavities 4 of the body 2 of the box. In this way, during filling of the box, the holders 19, 19a~~19~~19n can simply be placed in the opening of the various cavities 4 and these holders are then held by the projecting parts 15 in the way explained in the foregoing discussion.

/5

During the closing of the cover 10 the undulations 22 of the wavy plate 21 are brought into support against the holders and insert them inside the cavities, thus making them cross over the corresponding narrow sections 16.

The implementation above allows one to mechanize the positioning of the holders as well as the closing of the box without increasing appreciably the cost of the latter, since the wavy plate 21 can easily be made by continuous forming from a strip of thermoplastic material.

Figure 7 shows a third development of the invention that combines the two devices discussed above with reference, on the one hand, to figure 4 and, on the other hand, to figures 5 and 6, that is, it is provided with a sheet 20 that bears some graphical symbols, this sheet being inserted between the cover 10 and the wavy sheet 21.

The invention is not limited to the examples of implementation presented here and described in detail, because various modifications can be made to it without departing from the scope of the invention. In particular, in one variant, not shown here, the box can be made, only, from the body 2, the

cavities 4 being closed, by a glued sheet for example that can be peeled off completely or partially at the time of use. /6

CLAIMS

1. Dispenser box for various kinds of holders, characterized in that it includes a body (2) that surrounds a top (3) from which some cavities (4) are formed, each one delimiting an opening (14) that leads to at least one projecting part (15) that forms a narrow section (16) above a housing (17) that delimits each cavity from a deformable base (18).
2. Box according to claim 1 characterized in that the body is equipped with a cover (10).
3. Box according to one of the claims 1 and 2 characterized in that the cover (10) is connected to the body (2) by an articulated spine (9), the body (2), spine (9) and cover (100 assembly unit being connected in a single piece by molding a plastic material.
4. Box according to one of the claims 1 to 3 characterized in that the body (2) delimits on the periphery of its top (3) a flanged edge (5) from which a crown (6) projects outward and forms a stop for a rib (11) of the cover (10).
5. Box according to one of the claims 1 to 4 characterized by some protuberances (12) and complementary protuberances (13) formed by the body (2) and the cover (10) respectively to assure their locking in closed position.
6. Box according to one of the claims 1 to 5 characterized in that the crown (6) of the body (2) is prolonged by a peripheral

belt (7) and a flange (8) from which the spine (9) and the cover (10) extend outward.

7. Box according to one of the claims 1 to 6 characterized by a sheet (20) that bears some graphic symbols applied against the bottom of the cover inside the frame delimited by the rib (11) of this cover.

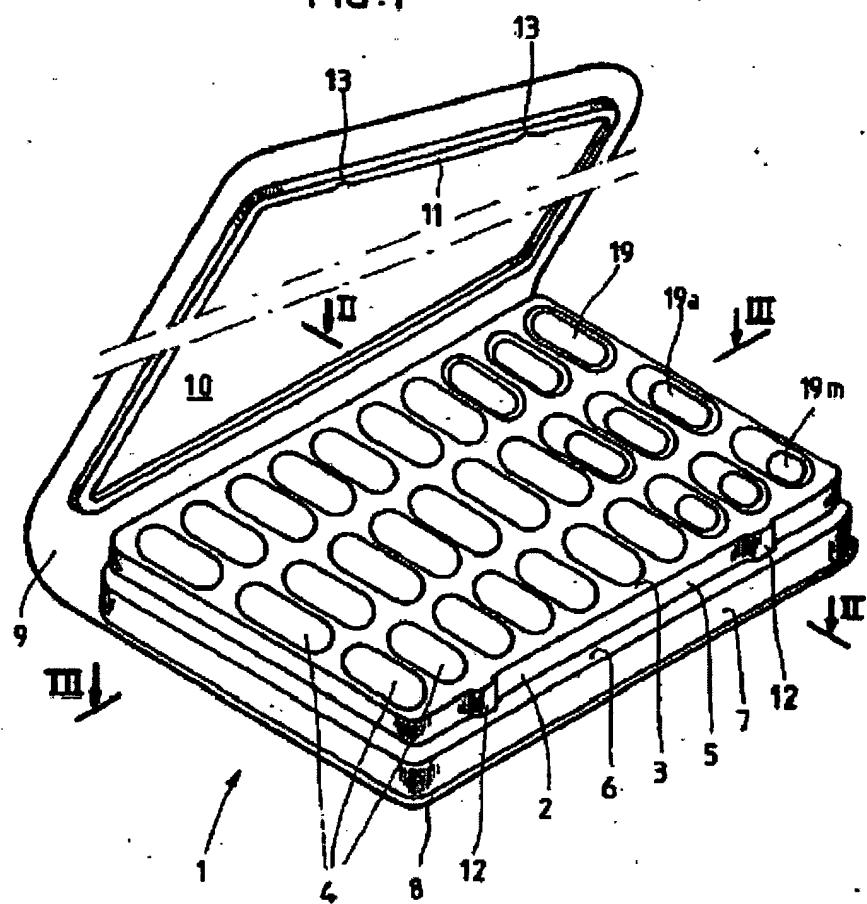
17

8. Box according to one of the claims 1 to 7 characterized by a wavy sheet (21) that has some undulations (22) that correspond to each of the cavities (4) of the body (2), the said wavy plate being framed by the rib (11) of the cover (10).

9. Box according to one of the claims 1 to 8 characterized in that the cover includes simultaneously a sheet (20) that bears the graphic symbols and a wavy sheet (21).

10. Box according to one of the claims 1 to 9 characterized in that the cavities (4) contain some holders (19, 19a, ~~19~~ 19n) having different dimensions.

FIG.1



2/2

FIG. 2

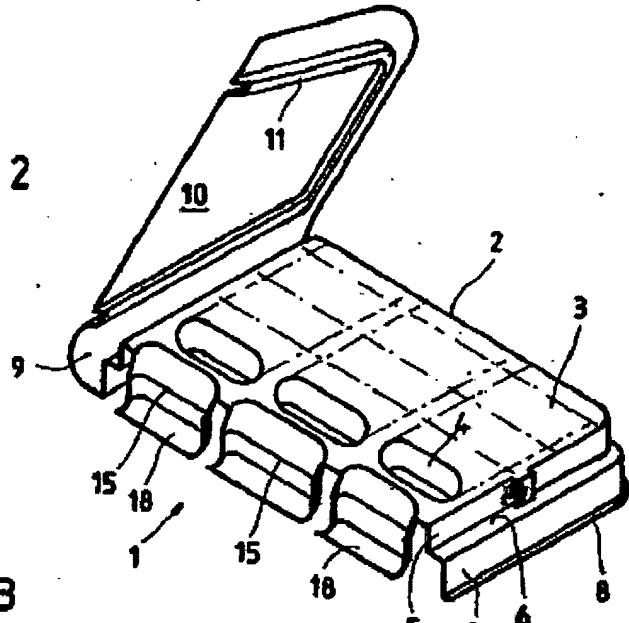


FIG. 3

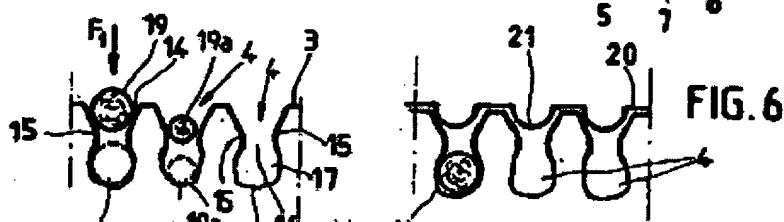


FIG. 6

FIG. 5

FIG. 4

FIG. 7